

REMARKS

Reconsideration and withdrawal of the rejections of the claimed invention is respectfully requested in view of the amendments, remarks and enclosures herewith, which place the application in condition for allowance.

I. STATUS OF CLAIMS AND FORMAL MATTERS

With entry of the current amendments, claims 1-7 and 14-19 are now pending in this application. No new matter has been added by this amendment.

It is submitted that the claims, herewith and as originally presented, are patentably distinct over the prior art cited in the Office Action, and that these claims were in full compliance with the requirements of 35 U.S.C. § 112. The amendments of the claims, as presented herein, are not made for purposes of patentability within the meaning of 35 U.S.C. §§§§ 101, 102, 103 or 112. Rather, these amendments and additions are made simply for clarification and to round out the scope of protection to which Applicants are entitled.

II. THE 35 U.S.C. 112, 2nd PARAGRAPH REJECTION HAS BEEN OVERCOME

Claims 1-13 were rejected as allegedly indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regards as the invention. The applicants request reconsideration of this rejection for the following reasons.

Claim 1 has been amended to read similarly to the passage on page 4, line 17 through page 5, line 7 of the specification and it is believed that the revised claim overcomes the alleged indefiniteness of the claim.

Claim 7 has deleted the phrase “and it is preferable not to use a diluent gas to produce cellulose ether with improved quality.”

Claims 12 and 13 have been cancelled which renders this rejection moot.

III. THE 35 U.S.C. 102(b) REJECTION HAS BEEN OVERCOME

Claim 8 was rejected as allegedly being anticipated by Onda et al. (US 4,091,205). This application has been rendered moot by the cancellation of claim 8.

IV. THE 35 U.S.C. 103(a) REJECTION HAS BEEN OVERCOME

1. Claims 1-4, 9 and 10 were rejected as allegedly being obvious by Onda et al. (US 4,091,205 – “Onda”). The applicants request reconsideration of this rejection for the following reasons.

2. Claims 5-7 and 11-13 were rejected as allegedly being obvious by Onda et al. (US 4,091,205 – “Onda”) as applied to claims 1-4, 9 and 10 above and further in view of Hitchin et al. (GB 909039 – “Hitchin”). The applicants request reconsideration of this rejection for the following reasons.

In order to establish a case of *prima facie* obviousness, all claim limitations must be taught. In addition, any modifications to the teaching of the cited reference must have some likelihood of success and cannot render the invention unsuitable for the intended purpose disclosed by the reference. However, Onda do not meet these requirements as applied to claims 1-4, 9 and 10.

First, Onda directs one of ordinary skill in the art to the use of a wood pulp as the starting material, whereas the present invention uses pulverized cellulose.

Second, the wood pulp is treated with alkalization, etherification, neutralization, etc and severe pulverization to be prepared into powders. Onda is characterized in that the process of neutralization is separated into two steps, i.e., by a first neutralization step employing part of an acid which is stoichiometrically required and then by second neutralization step adding an additional amount of the acid to complete neutralization, thereby resulting in cellulose ether powders having a good flowing property and excellent binding force simultaneously.

However, the present invention is characterized in that the severe neutralization process steps of Onda is omitted. The process of neutralization can be omitted in the present invention because the finely pulverized cellulose is employed as the starting material. The technique of omitting the neutralization process was first tried with success by the inventors of the present invention. There is no corresponding likelihood of success taught by Onda especially for using a different cellulose and omitting one of Onda’s key process steps.

Third, one of ordinary skill in the art without the benefit of the applicants’ claims to act as a blueprint would glean that the teachings of Onda are directed to producing celluloses with improved binding force and disintegration ability (see e.g. the Abstract) and any modification to the invention would made to achieve this effect.

However, the present invention is never related with the improvement of the binding force and disintegration ability, but is targeted on simplifying the process of preparing fine powdered cellulose ether thereby creating a more economical process which requires fewer process steps and uses fewer resources, i.e., the present invention is characterized in that the neutralization process which has been considered to be indispensable in the prior art is omitted, thereby simplifying the preparation process of the fine powdered cellulose ether.

For the purpose of the applicants' invention, the employment of the neutralization steps taught by Onda would not result in an improved process because:

- i) the acid is added very slowly due to the rapid generation of neutralization heat, which is difficult to control due to the hot water added before the neutralization. Therefore, excessive reaction times are needed for the acid treatment resulting in a time consuming process, and
- ii) the erosion of the process equipment and delivery pipes which results from the use of acid as the neutralization agent.

The present invention, although it appears to be simple, is very innovative in the art since it can dispense with the above limitations of the art necessary to achieve celluloses with improved binding force and disintegration ability, i.e. Onda requires the severe pulverization step after the neutralization step in order to prepare their raw cellulose for eventual use in a hammer mill to produce the celluloses of Onda with improved binding force and disintegration ability (see col. 3, lines 6-14 of Onda), whereas the present invention does not need severe pulverization, i.e. the present invention does not need a high running load in the pulverizing equipment and even does not need the pulverizing (grinding) step after the drying step.

As such, one of ordinary skill in the art would not interpret Onda as teaching the omission of the very process steps taught by Onda to obtain their celluloses with improved binding force and disintegration ability.

Therefore, for any of the above reasons, the applicants' claims are unobvious over Onda.

With respect to claims 5-7 and 11-13, the arguments against Onda are also applicable here. However, even if Onda had taught the applicants' claimed process such that the only difference was the use of a diluent gas as cited in the Office Action, the combination of Hitchins with Onda still would not render claims 5-7 and 11-13 to be obvious.

First, the characterization that Onda merely omits a teaching of the use of a diluent gas is overly simplistic for this invention, i.e. the omission is not merely the use of a diluent gas, but the use of a diluent gas *before adding an etherifying agent in a process of preparing low-substituted cellulose ether with excellent binding force and disintegration ability.*

The teaching of Hitchins only teaches the use of diluent gas in the context of preparing “new products consisting of rubber or cured elastomers reinforced with textile fibers obtained from polymers of alpha-olefins, in particular polypropylene.” (see page 1, col. 1, lines 10-14 in Hitchins).

Second, there is simply no reason as to why one of ordinary skill in the art would select this one particular element, i.e. use of a diluent gas, from Hitchins even if it was known when and how to use it in the process of Onda.

Without any guidance, one of ordinary skill in the art would look at the teachings of Hitchins as representing virtually an infinite number of possible solutions to whatever problem with Onda needed to be solved, e.g. why would one of ordinary skill in the art be specifically directed toward the use of diluent gas as opposed to the use of polypropylene (which is a preferred embodiment of Hitchins invention).

Thirdly, there must have been some finding that the use of a diluent gas would have resulted in the celluloses with the excellent binding force and disintegration ability which was sought by Onda. There was no teaching or suggestion either from Hitchins or Onda or from the knowledge of those of skill in the art that such an outcome was predictable.

Therefore, for any of the above reasons, the applicants’ claims are unobvious over the combination of Onda and Hitchins.

CONCLUSION

In view of the remarks and amendments herewith, the application is believed to be in condition for allowance. Favorable reconsideration of the application and prompt issuance of a Notice of Allowance are earnestly solicited. The undersigned looks forward to hearing favorably from the Examiner at an early date, and, the Examiner is invited to telephonically contact the undersigned to advance prosecution. The Commission is authorized to charge any fee occasioned by this paper, or credit any overpayment of such fees, to Deposit Account No. 50-0320.

Respectfully submitted,
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